



BAM-1020 Smart Heater Idle Wattage Setting

The BAM-1020 uses the Smart Inlet Heater system to control the sample RH to less than 35%. This prevents over-measurement caused by excess ambient moisture being absorbed into the sampled dust spot on the filter tape, and is a required setting for the EPA PM2.5 designation.

When the filter RH sensor measures above 35%, the Smart Heater is operated at a pulse width modulated (PWM) duty cycle of 100%, which results in up to 200 Watts of energy being applied to the inlet tube. When the filter RH sensor measures less than 35%, the Smart Heater is reduced to a much lower 20% duty cycle which generates about 40 Watts of energy. This default “idle mode” setting was chosen simply to match the constant wattage of the old-style heat tape inlet heaters, and to reduce the cycle time when the heater turns on. This is why the BAM-1020 Smart Heater always feels slightly warm even when the RH is low.

The default 20% inlet heater idle mode wattage can be set to a lower value if needed. This is sometimes necessary in order to reduce unwanted excess heat inside a BX-902 mini shelter in the summer. It can also be done to reduce the total power consumption of the BAM-1020 system in remote sites, or to reduce unwanted heating of the sample air when the RH is low.

Set the Idle Mode as follows:

1. Enter the SETUP menu on the BAM-1020. While the SETUP menu is displayed, press F1, F6, F3, F4 on the keypad to enter a hidden ADVANCED MENU setup menu.
2. Select HEATER from the advanced menu. The BAM screen should display the following:

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SETUP HEATER OFF:
OFF: 06 ( 20% )

SAVE                               EXIT
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3. The default idle mode OFF constant value is 06 (20%). Use the arrow keys to change the constant to a lower value such as 03 (10%), 02 (6%), or 00 (0%). If unsure, set the value to 02 (6%) which is about 12 Watts and is the preferred setting in Europe. If the setting is changed to 00 (0%), then the Smart Heater would turn off entirely whenever the filter RH is less than 35%.
4. Press the SAVE key and exit to the main menu. Don't change any other parameters in the advanced menu without specific instructions from Met One.

The default 20% idle mode setting is usually appropriate for most BAM-1020 applications.